

Patent
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Amendments to the Specification:

Replace the paragraph beginning at page 5, line 19, as follows:

The trend has been to use more polymer binder materials as one approach to achieve higher green strength parts. However, as the amount and complexity of binders used in these metal and/or ceramic polymer composite powders has increased, it has been increasingly difficult to remove ~~removing~~ all of the polymer system binders during the decomposition and burn-out phase. The decomposition of the polymer into smaller fragments should be complete enough to ensure that the bulk of the hydrocarbon fragments can escape the article skeleton before the infiltrating metal (copper or bronze, for example) enters the skeleton. If all of the hydrocarbon fragments do not escape, the interconnectivity of pores in the resulting metal part is decreased and outgassing is hampered as the interpassages become blocked by trapped hydrocarbon fragments leading to a phenomena of blistering on the surface and potential delamination of the final article. In some systems the presence of too much residual carbon can also impede the infiltration process. The presence of a reducing atmosphere, such as hydrogen or forming gas helps the polymer degradation greatly, but is a more expensive alternate than a non-reducing gaseous atmosphere.

Replace the paragraph beginning at page 13, line 17, as follows:

The polymeric binder system is selected from the group consisting of polyethylene, polypropylene, polyacetal, polymethacrylate, polyvinylacetate; co-polymers of polyethylene, polypropylene, polyacetal, polymethacrylate, polyvinylacetate, ~~nylon; wax;~~ nylon, wax, phenolic and combinations thereof. More preferably the binder system utilizes polymers and co-polymers of nylon, such as ones selected from the group consisting of co-polymers of nylon 6, nylon 9, nylon 10, nylon 11, and nylon 12. Most preferable are co-polymers of nylon 6 and nylon 12, such as nylon 6, 12. Nylon homopolymers may also be appropriate, such as nylon 6 or nylon 12. The polymeric binder must melt and

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freeze or recrystallize between about 75° C and about 200° C and more preferably between about 100° C and about 150° C to obtain optimal processing. It is theorized that a co-polymer having a lower melt viscosity facilitates optimal processing.